Abstract

There remains a lack of consensus on what should form the theoretical core of the intermediate macroeconomic course at the undergraduate level. Instructors must decide whether to follow the modern approach of building macroeconomic relationships from microfoundations, or to use the traditional approach based on aggregate models of the macroeconomy. This paper discusses the advantages and shortcomings of each approach in the context of course objectives. The consensus suggests that instructors should choose one theoretical framework to teach in depth rather than attempting to cover multiple frameworks. It also stresses the importance of pointing out the limitations of that particular framework and placing it in a wider context.

**JEL Codes/Keywords:** JEL A22/Intermediate Macroeconomics, Neoclassical, New Keynesian, IS/LM, AD/AS, Microfoundations
1. Introduction

A confluence of events has underscored the need to evaluate what is taught in the undergraduate intermediate-level course in macroeconomics. Within academia, widespread divergence has arisen between what is taught in graduate and undergraduate macroeconomic classes. The emergence of the modern approach to macroeconomics that prevails in graduate schools and dominates many academic journals, while reflecting some degree of convergence in macroeconomic modeling techniques across different schools of thought, has given rise to a new challenge for undergraduate instructors in deciding if and how these more complex, mathematically rigorous models should be incorporated in their teaching. Moreover, instructors have to make this decision against the backdrop of the recent US financial crisis and associated economic recession. These events amplified the role of macroeconomic theory in national policy discussions and brought renewed interest in the traditional divide between supporters of “Keynesian” policy interventions and those with a more “Classical” view of the world. As student interest in applying their academic knowledge to what was unfolding in the world around them was heightened, limitations of both traditional and modern macroeconomic models to analyze such events were revealed. In this context, the time seems right to assess what instructors might teach to intermediate-level undergraduate students.

As with any course, the decision about what to teach in intermediate macroeconomics will be driven by a variety of factors. Chief among them, however, must be the instructor’s course objectives. These might include general economic learning goals such as the acquisition by students of a comprehensive overview of the workings of the macroeconomy with the appropriate emphasis on long-run growth versus business cycles, and an ability to understand
and assess macroeconomic policy debates. Alternatively, the main objective might be content-driven based around an in-depth understanding of a specific model or set of models with a view, perhaps, of preparing students for graduate study in economics, or the course might have a more general meta-skill focus, concentrating on analytical thinking and certain technical skills. Undoubtedly, an instructor’s training and consequent theoretical views may influence which objective or combination of objectives they consider paramount.

There has been much convergence amongst research economists from across the spectrum in terms of the best approach to macroeconomic modeling, with both new-Classical and new-Keynesian models being built from microfoundations and incorporating rational expectations. This consensus has brought a lot of consistency to what is taught in macroeconomics courses at the graduate level. The degree of technical difficulty involved with these models and/or the willingness to change to a more contemporary approach have prevented them from being widely adopted in undergraduate courses. For macroeconomic educators, these issues give rise to significant challenges in deciding the content and structure of their core theory courses.

The selection of textbooks available for the course will also exert a major influence, especially for newer instructors more heavily reliant on the guidance the text provides. Institutional considerations may also play a significant role, influencing the preparation-level of students entering the course (e.g., separate or combined introductory-level course, math prerequisites, sequencing of intermediate micro- and macroeconomic courses), the options open to students upon completion of the course (e.g., availability of an advanced macro theory course or upper-level electives on topics such as growth or open-economy macro), the length of the semester, the number of hours the class meets, and the availability of support services.
The Great Recession, with its origins in the financial sector of the economy, highlighted the limitations of existing intermediate macroeconomic models, most of which simplify the sector into a choice between “money” and “bonds”. Moreover, the fiscal and monetary policy responses to the crisis went well beyond the conventional policy tools generally emphasized in undergraduate texts. In addition, the global nature of the crisis highlighted the interdependence among nations and their policy decisions. These issues make it difficult to determine the appropriate boundary between intermediate macroeconomics and other courses such as money and banking, international finance or even economic history. Should the core content of intermediate macroeconomics adjust in light of recent events? Some recent articles [the Economist (2010), Gärtner, Griesbach and Jung (2011)] suggest that it should and the latest editions of most intermediate macroeconomic textbooks have made explicit efforts to expand coverage relating to the current financial crisis.

Given these considerations, instructors are faced with two main decisions: 1) the usual decision about how the course will address different schools of macroeconomic thought, a decision crucial to how stabilization policy issues are addressed; and 2) the decision as to where the course should fall on the traditional-modern spectrum. For example, to what extent should their course build macroeconomic relationships explicitly from microfoundations, or start with aggregate models, placing less or no emphasis on microfoundations, but allowing for more emphasis on the use of the macroeconomic relationships to analyze current events and policy decisions?

The remainder of the paper is laid out as follows. The next section outlines briefly the theoretical divide in macroeconomics, provides a brief survey of the key textbook offerings for
intermediate macroeconomics and discusses of course objectives. The subsequent two sections present examples of traditional and modern approaches to teaching intermediate macroeconomics. The advantages and disadvantages of both the traditional frameworks and more modern approaches, including both new-Classical and new-Keynesian models, are highlighted. The final section summarizes certain common themes that emerge and provides some recommendations and advice for new faculty charged with teaching intermediate macroeconomics, or for faculty who are rethinking how they teach the course.

2. Some Background
   a. The “Classical”/“Keynesian” Divide

   Historically, most economists in the U.S. have been trained as either “Keynesian” or “Classical” macroeconomists, and many academic institutions are strongly associated with one or other school of thought. Of course, the precise interpretation of those labels is far from homogenous and has evolved over time. A common interpretation might define those under the Keynesian mantle as emphasizing the role of price/wage stickiness, imperfect competition, and the effectiveness of the government in stimulating demand in the midst of a recession through stabilization policy. On the other hand, “Classicals” are usually associated with the assumption of flexible prices and the ability of the economy to self-adjust, with the role for government limited to redistributing resources across an economy. While lines of demarcation still exist between new-Classical and new-Keynesian economists, there has been a significant convergence in terms of modeling approaches, particularly in the use of dynamic stochastic general equilibrium (DSGE) models. The current state of play, however, while less divisive than it has been historically, presents an additional challenge to undergraduate instructors in terms of deciding whether to stick with the traditional, more accessible models that can often readily be
applied to current events and policy issues within a semester-long undergraduate course, or whether to teach a course based on the more modern approaches.

b. Textbook Treatments

To get a sense of what is being taught at the undergraduate level, it is instructive to look at the key textbook offerings for the intermediate macroeconomics course. After investigating eight different textbooks, it is clear that the preferable approach involves a brief coverage of long-run economic growth and a greater focus on business cycle theory and related policy implications. Unlike in microeconomics where the standard set of models is quite uniform across different texts, there is significant heterogeneity in macroeconomics in how business cycle theory is treated.

The most popular texts for intermediate macroeconomics are those by Mankiw and by Abel, Bernanke and Croushore, accounting for approximately one-third and one-fifth of the market, respectively. In Mankiw’s offering, classical theory provides the benchmark equilibrium to which the economy converges in the long run and the IS/LM – AD/AS framework is used to capture the behavior of the economy in the short run, when frictions such as price stickiness lead to sluggish adjustment to shocks. There is limited material on microfoundations and the real business cycle (RBC) model towards the end of the book. Abel, Bernanke and Croushore offer a balanced treatment of classical and Keynesian ideas and, like Mankiw, uses one unified framework. Abel, Bernanke and Croushore gives a more prominent role to microfoundations than Mankiw by placing the material at the start of the book and using it to motivate the IS/LM and AD/AS models, but like Mankiw, the traditional IS/LM framework is still central to the analysis of the short run. Both of these market-leading books, therefore, fall
more under the traditional than the modern approach, although the addition of a chapter covering a dynamic AD/AS model in the most recent edition of Mankiw allows instructors the option to provide students with a stepping stone towards the DSGE models that have become standard at the graduate level. Other offerings, such as Mishkin (2011), devote separate sections to the treatment of microfoundations without removing or decreasing the importance of the aggregate models and have material relating to DSGE models.

More often than not, the solution to teaching undergraduates is to fall back on the type of analysis that was prevalent before the rational expectations revolution and to do some “hand-waving” about the known shortcomings. The vast majority of textbooks still approach macroeconomic theory as a system of ad-hoc equations whose solution determines the behavior of key macroeconomic aggregates. Very few textbooks connect these equations explicitly and comprehensively with microeconomic foundations. An exception is Carlin and Soskice (2006), which was the first effort to make a modern, new-Keynesian model the analytical core of the short-run section. They provide a graphical treatment of a three-equation new-Keynesian model based on an IS curve, a Phillips curve and a monetary policy rule that maps closely into the models prevalent in graduate schools and policymaking institutions. In fact, the new-Keynesian approach is now the central short-run model in the Jones (2011) text, while Mishkin (2011) presents both the new-Classical and new-Keynesian models but gives the instructor the flexibility to choose the approach (or to teach both).

For instructors who wish to teach a course based on the new-Classical school of thought or who are not willing to eschew the use of microfoundations, there are some textbook alternatives available. The first edition of Williamson’s text in 2002 was the initial attempt to bring the microfoundations of graduate-level macroeconomics to the undergraduate level. The
newest version of the text (Williamson, 2011), which has captured approximately 10% of the market, uses a unified micro-founded framework, starting with the static labor-leisure model and building to dynamic models of the economy. Microfoundations are central and the RBC model is presented in some detail in the first part of the book. It incorporates only one chapter on the new-Keynesian approach without the LM curve. Introducing students to the dynamics of the macroeconomy are front and center in this text, which provides students with a framework to think about what questions to ask, and how to answer them in a coherent and tractable way.

From this brief survey, it is evident that a student’s experience in intermediate macroeconomics can vary widely depending on the textbook choice made by the instructor. That this heterogeneity prevails reflects the complexity of the issue, with benefits and costs associated with each of the traditional and modern approaches. Moreover, how these costs and benefits are weighed will be influenced by the choice of course objectives. Next, we discuss some views on course objectives that emerged during panel discussions with groups of macroeconomics instructors before outlining some of the costs and benefits of the traditional and modern approaches in the subsequent sections.

c. Achieving Course Objectives

While specific course objectives and approaches in intermediate macroeconomics course vary across instructors and institutions, our discussions with groups of instructors revealed several common overarching themes. First, macroeconomics instructors find it best to offer one theoretical framework in which to analyze macroeconomic phenomena. The specific framework will vary across instructors, but most report teaching one class of models in depth, rather than offering competing or alternative models. This is consistent with the panel discussion at Colgate
University in 2010, in which three of the four panelists specifically commented on depth versus breadth. The acquisition of meta-skills, which include the ability to think through a model analytically and rationally, emerged as the paramount concern rather than which particular model was used to facilitate the acquisition of those skills.

Second, intermediate macroeconomics instructors often attempt to link the theoretical predictions of the macroeconomic models they teach to the data. Rather than exclusively focusing on theory (or data), it seems that instructors are making real efforts to get students to understand the usefulness of the models in analyzing data. The balance between theory and applications varies across instructors, particularly for those teaching the microfoundations approach, which often requires more time and effort be devoted to theory. The linkage between applications and theory has allowed instructors to adapt the models to understand recent macroeconomic events. In fact, instructors often report that they are teaching the same set of models since the Great Recession, but they are applying the models in different ways so that students can analyze the events within the same unified framework. Once again, there is some variation in the frequency and depth of the discussions across instructors. Already, we have seen textbooks adapt to more comprehensively account for recent events, providing more depth in the coverage of the financial sector, for example.

Lastly, instructors show students the limitations of the frameworks presented. Since they are usually restricting the theory to one class of models, it is important to illustrate the models’ imperfections in explaining various aspects of the macroeconomy. Rather than offering a new class of models, however, these discussions give students a sense of the academic discourse surrounding the various approaches and the dynamic nature of the field of macroeconomics.
Other course objectives have been reported, which may vary across instructors and approaches. For example, some instructors focus on developing a “toolkit” that students can use in advanced macroeconomic electives. Going even farther, perhaps preparing students for graduate school is of paramount importance for some, leading them to take a more mathematical approach to the course. Other instructors may emphasize the history of thought in macroeconomics. Perhaps the goal is to prepare students so that they can read journal articles in economics and be able to follow recent discussions and debates. The decision about which approach the instructor takes in intermediate macroeconomics, whether it be more traditional or modern, will depend on what the specific course objectives are. In what follows, we discuss the two approaches in the context of the possible set of course objectives.

3. The “Traditional” Approach to Teaching Intermediate Macroeconomics

The core material covered in most intermediate macroeconomics courses include: (1) short-run models that can be used to analyze business cycles and the policy responses to them, and (2) long-run growth models. Most of the disagreement in approaches is related to which short-run model(s) are most appropriate for intermediate macroeconomics. As such, we will focus our discussion on short-run models. However, the amount of coverage on long-run growth models can vary across instructors which impacts how much time they have to devote to short-run models and issues.

Broadly speaking, the traditional approach to intermediate macroeconomics consists of using aggregate models of the macroeconomy (i.e., the IS-LM and AD/AS models) for the short-run component of the class. A major advantage in the context of undergraduate teaching is that it
can provide a wide-range of students with a sense of the “big picture”, something that is far more
difficult to achieve with the modern approach. In what follows, we briefly discuss the origins of
the approach, provide examples of how the approach is currently used, and highlight the
important drawbacks with this approach. We also discuss how the approach has been updated
over time so that it remains relevant to recent macroeconomic discussions, and in particular, to
the most recent recession.

Some form of the IS/LM model, with its origins in Hick’s interpretation of ideas from
Keynes’s general theory, has played a central role in intermediate macroeconomics courses for
decades. vii It is often used as a building block for the aggregate demand curve of the AD/AS
framework and provides a concise mechanism for analysis of the qualitative impact of monetary
and fiscal policy on the economy. The primary advantage of the traditional approach is that
students in an intermediate macroeconomics course can acquire a coherent framework within
which they can think about macroeconomic issues. In this unified framework, students can make
linkages between the various sectors of the economy and the interconnections between different
economies, and apply this kind of thinking to policy analysis. In fact, the framework can
effectively be used to analyze the costs and benefits of macroeconomic policy in various
macroeconomic situations.

Some instructors have incorporated elements of the modern approach into the traditional
framework, starting with microfoundations but then build to the AD-AS and IS-LM frameworks.
Discussions of the labor-leisure and savings/consumption models are used to segue into
aggregate labor and capital markets. The instructor can then show how the labor, capital and
money markets feed into the AD-AS model, which is used to derive the IS-LM model. This
approach allows students to see where the Keynesian macroeconomic models are derived from,
rather than hand-waving about the model’s fundamentals. However, different from a pure micro-founded approach, it allows students to put the various components of the macroeconomy together into one comprehensive model that is accessible to undergraduates.

By building the IS and LM curves from underlying models and using that model as a foundation for AD/AS allows students to see the interconnections between different parts of the economy and the important role played by modeling assumptions. Students can use the framework to see how the economy can either self-adjust from a short-run to a long-run equilibrium position or how stabilization policy might work to achieve that adjustment. The model is rich enough to analyze the impact of a wide variety of shocks on the economy. It can also be adapted from a closed-economy setting to a small-open-economy setting. The addition of an upward-sloping SRAS curve allows students to explore the impact of a less-extreme assumption than fully pre-set prices in the AD/AS model or a situation where short-run deviations from optimal output arise from frictions such as imperfect information.

The traditional IS/LM – AD/AS framework, despite its flaws, can serve as an effective framework for an intermediate-level macroeconomics course. While it is not the model that prevails currently at policy institutions, it does provide students with a unified framework within which to think about the long run and about short-run movements as deviations resulting from imperfections in the economy. This, of course, is not the only way to think about short-run fluctuations and students should be aware of that. An alternative view based on real business cycle models can be introduced briefly into the course. However, detailed knowledge of a narrow set of models and multiple opportunities to apply those models combined with a sense of the broader context for those models appears to be an effective way to meet course objectives and
equip students with the broad skills necessary to pursue more advanced study of macroeconomic issues.

Another objective that can be well served by the traditional approach is teaching students the importance of judging levels or movements in economic variables against some kind of soundly-based benchmark, a habit that can be very effective at dispelling mistaken or poorly-thought-out ideas and opinions. The process of making assumptions, identifying which variables are exogenous and endogenous, defining the relationships amongst variables and representing and working with those relationships mathematically and graphically are critical in this approach. Students are able to move beyond the specific model presented and to investigate the implications of changing some of the underlying assumptions, making the details of any one particular model less central to the course. Finally, students are encouraged to identify which theoretical models may be useful in understanding current or past economic events and to critically evaluate the performance of the models. The ultimate goal may be to create economically well-informed citizens, who leave the course with the ability to logically assess economic policies and to identify good (and bad) economic analysis when they see it.

Based on textbook market shares, the traditional approach remains the most common approach to intermediate macroeconomics, with Mankiw (2010) and Abel, Bernanke and Croushore (2011) together representing more than 50 percent of the market. The persistence of the traditional approach by no means suggests it has been without its critics, and many of the flaws that have been highlighted are of a serious nature. Fundamentally, the IS/LM model has been criticized for its lack of microfoundations and the consequent ad hoc nature of the relationships it puts forward between key aggregate variables as well as the absence of a central role for expectations (Romer 2000). Barens (1997) provides an overview of the development of
the IS/LM model over the decades and uses this development to provide a view on what went
wrong with IS/LM-AD/AS analysis. The core of the issue lies in the inconsistency of the
assumptions behind the models used in terms of the flexibility of prices. The version of the
IS/LM model that has been adopted by modern-day textbooks assumes a given price level and
this is used to build an AD curve that forms part of a model to endogenously determine the price
level.

Colander (1995) delves into more detail about the inconsistencies between the standard
interpretation of the AD curve and Keynesian foundations. He emphasizes the problem in
standard AD/AS models that treats the AD curve derived from the Keynesian aggregate
expenditure/aggregate production approach as being based on a ceteris paribus assumption,
when the underlying analysis clearly involves an interactive effect between demand and supply.
The multiplier effects that are central to the Keynesian cross model are obscured. He also points
out problems with the dynamics implied by the model in response to shocks.

Other problems of the IS/LM-AD/AS framework have not gone unnoticed by the
economics profession. Articles have been published suggesting various ways to remedy one or
more of the perceived faults with the standard textbook presentation. For example, Romer
(2000) and Williamson (2011) outline an approach where the LM curve is replaced with a real
interest rate rule. Weerapana (2003) builds on this idea, making the case for replacing the
traditional framework with an AD/PA (i.e., aggregate demand/price adjustment) model based on
the work of Romer and Taylor. An important contribution of Weerapana (2003) was to
introduce liquidity trap effects into the AD-PA framework, which changes the shape of the AD
schedule at the zero bound. Similarly, Jones (2011) replaces the LM schedule in the short-run
model with a simple Taylor rule whereby the central bank sets the nominal interest rate in response to inflation only.

Perhaps the most relevant shortcoming of this framework for modern day use in analyzing the response to the financial crisis is its lack of credit market frictions, in addition to its focus on the money supply rather than some interest rate as the key instrument of monetary policy. Coupled with the shortcomings in translating fiscal policy multiplier effects from underlying models into the AD/AS framework, the appropriateness and usefulness of the framework has been seriously questioned.

Given that the DSGE model of modern macroeconomics has been taught for decades at the graduate level and that rarely are the IS/LM and AD/AS frameworks even mentioned in graduate school, it is surprising that the IS/LM framework has persisted as the workhorse model of intermediate macroeconomics. Colander (2006) suggests that the IS-LM model has survived and will remain because of five reasons: (1) inertia – it is a nice pedagogical tool with the right level of math for undergraduates, (2) it looks like a standard demand and supply model which provides comfort to the students, (3) it is a nice graphical representation of difficult policy issues, (4) its testability for policy issues, and (5) its elegance hides the deep theoretical underpinnings of the macroeconomy – students do not need to understand all of the nuances to use the model. The irony is that the exact same reasons could be listed in favor of the three-equation new-Keynesian model (discussed below). The only difference would be the absence of the first reason above, because the underpinnings of that model would be considerably more modern than IS/LM.
4. The Modern Approach to Teaching Intermediate Macroeconomics

a. The Modern New-Classical Approach

The origins of the modern approach can be traced back to the rational expectations revolution of the 1970’s, and the associated Lucas critique, when the large-scale macro-econometric models of the Keynesian tradition came under increased attack. The idea that important relationships between aggregate variables, considered until then structural, were in fact likely to vary with policy due to the influence of policy changes on private decision-makers’ expectations of the future, came to the fore. The confluence of this idea, and the technical tools to accommodate the analysis of forward-looking behavior, allowed macroeconomists to rethink the way their models were set up and analyzed. The “microfoundations of macroeconomics” revolution began, in which individual-level decision making became explicitly modeled. This set the table for the freshwater/saltwater divide that prevailed until the emergence of a new synthesis in the 1990s, when both schools of thought converged on the use of micro-founded DSGE models as their primary tool. These DSGE models are widely taught in graduate schools but have not made major inroads into intermediate macro theory courses at the undergraduate level. However, the significant market share of the Williamson (2011) textbook, currently at 10 percent, indicates that macroeconomic instructors are increasingly willing to take this approach.

The new-Classical, approach to intermediate macroeconomics uses real business cycle theory as the primary model. The one-period labor-leisure model is first introduced, followed by the two-period model with endogenous labor supply and investment. Unless intermediate microeconomics is a prerequisite for intermediate macroeconomics, the professor taking the Williamson approach needs to teach the necessary micro models (i.e., labor-leisure and savings-consumption) at the onset. A detailed review of microeconomic theory and calculus should
occur, where students need to understand the concept of indifference curves and consumer equilibrium.

Understanding theoretical models is often difficult for students as they can struggle with very basic concepts relating to model building and solutions. It is imperative, therefore, to spend a substantial amount of time teaching students the basics of model building, which involves covering the following basic questions: What is the difference between endogenous and exogenous variables? For what purposes are models created? What are the limitations of the models?

A major advantage of the new-Classical approach is that it is straightforward to illustrate the connection between the long run and the short run. The instructors can show that by increasing the number of time periods in the basic two-period model with production, the solution to the consumption policy function converges to the Solow consumption function (with Cobb-Douglas preferences) from growth theory.

The teaching objectives may be somewhat different in the modern new-Classical approach than in the traditional Keynesian approach discussed above. In this framework, students can understand the connection between macroeconomic models and stylized facts. For example, in the two-period endowment model, one can easily demonstrate consumption smoothing behavior by imposing exogenous shocks to income through taxes or the actual endowment. This allows the instructor to discuss how model calibration can be used to mimic certain stylized facts, and provides a glimpse of how cutting-edge macroeconomic research is performed.
Students also are required to build a strong set of mathematical and analytical skills and thereby create a tool kit that can be used in upper-level macroeconomic electives. This toolkit involves having students solve systems of equations with closed form solutions in which the solutions have rich economic interpretations. This forces the students to see the connection between an algebraic solution and its graphical representation. It also allows them to see how certain parameters can influence the implications of the model.

Being able to solidify students’ mathematical and analytical abilities leads to the third objective of an intermediate macroeconomic theory course: to familiarize students with current economic research. A micro-founded course gets students to understand the methods currently used to solve macroeconomic models, as well as the jargon used by economists. This allows students to better connect economic theory to real-world applications.

The new-Classical approach can be used to address macroeconomic policy issues such as taxation, government spending and monetary policy. For example, micro-founded models with either money in the utility function or alternative models, such as cash-in-advance, can be introduced to study monetary policy. Students can derive the money demand function from these models and study how exogenous shocks to output or the interest rate affect the money market. In addition, frictions can be added into these models so that monetary policy can be analyzed. The downside is students have to analyze a different type of model (albeit in a similar setting) for each policy tool and compare the costs and benefits within the different models.

In addition, two of the most important macroeconomic concepts, unemployment and inflation, are quite difficult to capture in new-Classical models with rational expectations. Thus, an alternative model, such as a search theoretic framework, must be introduced to give
students an accurate account of the microfoundations behind these important macroeconomic concepts. The time required to teach these models to undergraduates can be quite significant, leaving little time for other serious policy debates. In fact, perhaps the most significant downside of teaching a pure microfoundations approach (in a one-semester course) is that the majority of the semester is spent teaching the models, rather than using the models to carefully analyze the costs and benefits of various policy responses. Thus, students typically end the semester with very little understanding of the most central questions surrounding fiscal and monetary policy. In addition, there is very little time left to apply the models to current events, so that students may not have a good understanding of the events unfolding around them, which would have been particularly poignant in recent years. Ideally, it would be best to teach the course over two semesters, which would leave plenty of time to teach both the model and policy analysis in detail. Still, the benefits of this approach are that students are exposed to models that are consistent with contemporary macroeconomic thinking.

Of course one straightforward solution to this problem would be to require students to take intermediate microeconomics prior to taking intermediate macroeconomics, as Salemi (1996) suggests. As long as students are exposed to standard price theory in intermediate microeconomics, the macroeconomics professor could assume that the students walking into the class having a working knowledge of the necessary consumer and production theory, and could start applying the models to macroeconomic issues much earlier in the semester. The majority of Economics departments in the U.S. do not require a particular sequence of intermediate micro and macroeconomics.

b. The Modern New-Keynesian Approach
The microfoundations approach has become the standard approach to macro-modeling for new-Classicals and new-Keynesians alike. Thus, there has been a blending of real business cycles and rational expectations from the new-Classical approach with models with wage and price stickiness in the Keynesian spirit, but all in well-founded microeconomic models. The key difference between new-Classicals and new-Keynesians nowadays are the assumptions underlying the models, with new-Keynesian models, for example, incorporating some form of market imperfection or price rigidity that gives rise to a potential role for government policy.

The practice of putting the new-Keynesian approach in an intermediate macroeconomic text began with Carlin and Soskice (2006). Carlin and Soskice (2006) pre-dated the DSGE sections of Mankiw (2010), Jones (2011) and Mishkin (2011) through its use of the three-equation new-Keynesian model with an optimal monetary policy rule, consistent with work by Romer (2000) and Taylor (2000) who attempted to make modern monetary theory more accessible to undergraduates. Other textbooks have attempted to bridge the divide between the traditional and modern approach with the inclusion, for example, of a new chapter featuring a dynamic AD/AS model in the latest edition of Mankiw (2010), to provide students with a stepping stone towards the DSGE models that have become standard at the graduate level. Kapinos (2010) provides a nice illustration of how the baseline new-Keynesian framework used for undergraduates has evolved from a static environment to a full-fledged dynamic environment with rational expectations and persistent shocks. Recently, Alpanda et al (2011) and Kapinos (2011) have provided important extensions of the dynamic AD-AS model so that they more closely mimic data, while still being accessible to undergraduates.

The key component of the new-Keynesian framework at the intermediate level is the new-Keynesian short-run Phillips curve (i.e., an upward sloping short-run aggregate supply
curve). In this set-up, inflation depends on expected future inflation instead of expected current inflation. This assumption allows for a dynamic AS curve, where expectations about future inflation affect output in the short-run. Thus, expectations about future monetary policy and demand shocks cause the dynamic AS and AD curves to shift. The key innovation from the traditional Keynesian model is that the model incorporates important dynamic aspects of the macroeconomy, and specifically, differentiates between the effects of anticipated and unanticipated aggregate demand shocks. In fact, the new-Keynesian/three-equation model implies that unanticipated shocks have larger effects on output in the short-run than anticipated shocks (Mishkin, 2011). Another advantage of the new-Keynesian model is that it allows for the interest rate to be the main monetary policy tool, as opposed to the money supply.

An important attribute of the new-Keynesian model is that the RBC new-Classical model is a special case of the new-Keynesian model with completely flexible prices. Thus, the two models can be taught hand-in-hand. However, the two models differ with respect to their views on the sources of business cycle fluctuations. The RBC model finds that business cycles arise only from supply shocks, while the new-Keynesian model allows for both supply and demand shocks to be sources of business cycle fluctuations.

Perhaps the most important difference between the new-Classical and new-Keynesian approach in teaching intermediate macroeconomics is the role for macroeconomic policy in the short-run (there is little difference in the long-run effects implied by the models). The new-Classical model indicates that there is little to no role for expansionary policy since prices adjust quickly, so that there are no effects on real output (but there are inflationary effects). However, the new-Keynesian model allows for a role for expansionary policy in terms of boosting output in the short-run, and this is primarily due to price stickiness. In addition, the new-Keynesian
model provides a nice framework to talk about time inconsistency of optimal policy (Kapinos, 2010). The model also allows for an examination of various issues related to monetary policy, including the use of rules versus discretion, to discuss the role of anchoring expectations and to think about the role of communication (Blanchard, 2008).

In terms of anti-inflationary policies (such as contractionary monetary policy), the story is similar. Contractionary monetary policy will reduce inflation but no has effect on real output, based on the new-Classical model. However, the new-Keynesian model, in line with the traditional Keynesian model, suggests that reducing inflation leads to reductions in real output in the short run, although the reduction in output can be minimized when the policy is anticipated.

A major advantage of the new-Keynesian approach for intermediate macroeconomics is that the model is closer to the research frontier (compared to the traditional Keynesian approach). In fact, recent updates to the basic new-Keynesian model such as Alpanda et al. (2011) and Kapinos (2011) who incorporate flexible inflation expectations, risk-premia shocks, lower bounds on nominal interest rates and deviations from a Taylor rule, bring the models even closer to those used by policymakers and academics. Importantly, these models are equipped to deal with issues from the Great Recession, most notably the financial crisis and the liquidity trap, while still being accessible to undergraduates.

The challenges in teaching the new-Keynesian approach can be significant. Similar to the new-Classical approach, a significant amount of time must be devoted to introducing the three-equation model. Similar to the traditional Keynesian approach, students may view the new-Keynesian model as a black box, with little understanding of the microfoundations behind the model, since this model can be taught without introducing the microfoundations (which is the
approach taken in Jones (2011), for example). Instructors who attempt to derive the three-equation framework from their microfoundations will find it to be quite rigorous (and more so than the typical RBC model) since introducing the short-run effects of price stickiness is complex. Also, developing theories of price stickiness is important to motivate the key assumptions, but may be challenging in a one-semester course.

Similar to the new-Classical framework, getting students to understand dynamic equations and the interlinkages between them is cumbersome in an intermediate course, but perhaps is more complicated in the new-Keynesian framework with forward-looking expectations. In fact, confusion can arise among the students if the initial models from which everything is derived are grounded in rational expectations since inflationary expectations are treated somewhat differently in different parts of the model. Relatedly, discussing the importance of price rigidities in the context of unanticipated events (i.e., shocks and policy) is a fairly deep concept for the macroeconomics students to absorb and retain early in their academic career. Finally, trying to provide real-world examples and support for these unanticipated events requires a significant amount of legwork for the instructor.

Still, the new-Keynesian approach seems to be gaining traction, as more textbooks now include some version of the three-equation model. In addition, the model seems to be flexible enough to realistically talk about macroeconomic phenomena such as those relating to the Great Recession.

5. Conclusions and Recommendations

From our perspective, the major challenge for intermediate macroeconomics instructors is that the accessible IS/LM – AD/AS framework is flawed, and does not closely represent
modern macroeconomic models. More modern approaches that enjoy greater internal consistency (i.e., DSGE models) do not lend themselves to be taught to a general audience at the intermediate level, and in particular, do not tend to get students to a place where they can readily think about current policy debates in the space of one semester. The modern approaches are also more mathematically difficult, making them less accessible for many undergraduates.

The most important decision new instructors of intermediate macroeconomics (or those who are considering reworking their class) have to make is on whether to teach the traditional approach, which uses an aggregate-macroeconomic-model approach, or a more modern approach based on microfoundations. If the instructor chooses the microfoundations approach, then he/she is also faced with the decision as to whether new-Classical models of real business cycles or the new-Keynesian three-equation model should be the major focus. This decisions may be somewhat daunting, given the heterogeneity in textbook treatments on the issues. Our advice to new instructors is to first think broadly about the goals of the course in the context of their institutional setting, and then to choose the approach that best accomplishes those goals. Once the approach is decided on, the instructor can use the discussions in this paper as a starting point in the textbook adoption process. Of course, once the textbook is chosen, there are still choices to be made about what parts of the text to use and to what extent supplementary materials are drawn upon.

If considering the modern new-Classical approach, the sequencing of intermediate micro- and macroeconomics must be taken into account, and if possible, intermediate microeconomics made a prerequisite for intermediate macroeconomics. In departments where several instructors are teaching this course, some coordination of topics is warranted early in the process. In addition, depending on the macroeconomic electives offered in each institution, it is important to
be aware of departments’ expectations in terms of the skills that students should have after completing intermediate macroeconomics – for example, will students be expected to know the IS-LM model in another economics course? Instructors need to consider the variety of electives offered, and in particular, the frequency of students’ exposure to international issues, as that may influence the amount of time devoted to open-economy macroeconomic issues.

So, what does the future hold for the intermediate macroeconomics course? As more faculty retire and are replaced with newly minted PhD’s, will there be a push towards the new-Keynesian and new-Classical approaches, which are more consistent with graduate-level macroeconomics? Will some of the newer models that tweak the traditional IS-LM model (such as the IS-MP rule of Romer, 2006) be adopted more broadly in the textbooks? Will DSGE models (or steps in that direction in the form of more simplified dynamic aggregate demand/aggregate supply models) soon find a central place in the intermediate macro textbooks?

Certainly, the Great Recession will influence the next generation of intermediate macroeconomics courses, but will the textbooks do what instructors have been doing thus far, by using the traditional models to analyze the causes and consequences of this recession? Or, will new models be developed for undergraduates where financial markets are central to the analysis macroeconomy? All of these questions remain unanswered at this time. Based on our analysis, it seems that the consensus is to choose one framework and get students to understand that one framework well. There is no consensus as yet, however, on what that one framework should be.
REFERENCES


The Economist. 2010. “Revise and resubmit: The crisis is changing how macroeconomics is taught,” March 31.


Appendix

List of Questions for Panel Discussion, Colgate University, August 2010

“What Should We Be Teaching in (Intermediate) Macroeconomics?”

1. What are the main goals of an intermediate theory course at the undergraduate level?
   • Graduate school preparation or general education of those who will not pursue a higher degree – or do they constitute the same thing?
   • Is there a core set of concepts that should be covered in intermediate macro and if so, what are they?
   • Is there a core set of skills that students should acquire? How much should the emphasis be on technical modeling? How important is exposure to current economic events in this course? Should it be central to the course, or on the periphery?

2. How would you describe the most appropriate overall theoretical approach to the course?
   • Fresh water versus saltwater, role of micro foundations, DGSE models?
   • IS/LM or some alternative such as AD/PA or neither?
   • AD/AS – price/output space or inflation/output space or at all?
   • Should we focus on one theory or expose students to multiple theories? Can students really understand the complexities of more than one macro theory at this level?

3. Is the content of intermediate macro under debate at your institution?
   • How are other departments dealing with opposing schools of thought?
   • Is there a generational divide on this issue?
• Does your department have a common text for this course? If not, how does your department deal with students with different macroeconomic background in upper-level classes?

• Has the recession sparked some new interest in this debate?

4. What do you think the scope of the course should be?

• Coverage of short run fluctuations, growth, open economy?

• Thoughts on sequencing long run, short run, very long run?

• Depth of coverage of financial markets in light of the recent crisis?

5. Do you have specific recommendations in terms of how intermediate macro should fit within the overall major?

• Pre requisites (ordering of micro/macro, calculus/other math requirements)?

• Implications for electives?
NOTES

i We first began to explore these issues in preparation for a panel discussion we organized on the topic at the Sixth Annual Workshop on Macroeconomic Research at Liberal Arts Colleges in 2010 held at Colgate University. We would like to thank the members of that panel, Dean Croushore, Ed Gamber, Michael Salemi and Akila Weerapana, for sharing their thoughts on these issues with us. Their answers to the questions we posed have no doubt helped shape our views. We would also like to thank members of the audience for that panel and for a subsequent panel discussion, conducted by the authors of this paper at the First Annual AEA Teaching Conference at Stanford University in 2011, for the questions and comments they contributed to the discussion. In addition, comments by Sami Alpanda, Kartik Athreya, Pavel Kapinos, Roger Kaufman, Thomas Michl, Marc Tomljanovich, Chad Sparber and Steve Williamson are deeply appreciated. All errors and omissions are our own.


iii Jones is somewhat unique in that he devotes more coverage to long-run growth (at the cost of some short-run coverage) than most other intermediate macroeconomics texts in the market.

iv The estimates for market shares of intermediate macroeconomics textbooks were provided by Pearson Education, Inc, and are for the fall semester of 2010. These data can vary widely across semesters and so should be interpreted as being only broadly indicative of market shares.

v Subsequent editions of this textbook have not been forthcoming, however.

vi These ideas are formulated based on a panel discussion on what to teach in intermediate macroeconomics in August 2010. Refer to footnote i for more details.

vii See Colander (2006) for a thorough description of the changing role of the IS/LM model since the 1960’s and his thoughts on the reasons for its persistence.

viii The IS-MP model is a useful alternative to the IS-LM that better captures monetary policy tools (Romer, 2006).


x See Mankiw (2006) for a concise overview of the history of macroeconomics.
The terms “freshwater” and “saltwater” became common tags for proponents of the new and traditional modeling approaches, respectively, reflecting the geographic location of the institutions generally associated with them. Krugman (2009) offers a spirited discussion of the divide. The distinction on this basis has lost much of its relevance in recent times.

Kapinos has also posted a workbook for the use of New Keynesian models in intermediate macroeconomics at http://www.people.carleton.edu/~pkapinos/workbook.htm.

We thank Pavel Kapinos for providing us with a detailed account of his approach to the New-Keynesian framework, including sharing some of his challenges in teaching it.